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N^o 14,955



A.D. 1893

Date of Application, 4th Aug., 1893
Complete Specification Left, 4th May, 1894—Accepted, 9th June, 1894

PROVISIONAL SPECIFICATION.

Improvements in or connected with Boots and Shoes.

I, FREDERICK ROBINSON, of Trent Works, Burton-on-Trent, in the County of Stafford, Engineer, do hereby declare the nature of this invention to be as follows:—

This invention has reference more particularly to those boots and shoes which are worn by athletes or by persons playing tennis, cricket and other out-door games but my invention is also applicable to boots and shoes generally.

My invention consists in the application of inflated or pneumatic india rubber or like flexible tubes to the soles and heels of boots and shoes so as to form an elastic tread, the said tubes being either detachable from the said soles and heels or not detachable and provided with a valve by which the tubes can be inflated or deflated at will.

The said pneumatic or inflated tubes may be arranged and connected to the said soles and heels in various ways for instance the sole of the boot or shoe may have an undercut groove or projecting ribs running round the under side of the same in an oblong or other suitable form and in this groove or between these ribs fits the pneumatic tube which may be like the endless inner india rubber or like air tube and the outer covering of a pneumatic tyre for wheels. There is a similar groove or ribs running round the underside of the heel and a similar pneumatic tube fitting therein. The sole tube and the heel tube are connected together by a small tube under the instep and in this small tube is the valve and connection for the pump when inflating the tubes so that both tubes are inflated together. Or the sole and heel tubes may be quite separate and distinct with separate valve to each or the same pneumatic tube may be arranged round both the sole and heel of the boot or shoe.

Or the sole and heel may be made as usual and the pneumatic tube or tubes be arranged to fit in a light metal or other plate or frame or plates or frames the edges of which are turned outwardly and inwardly so as to form the necessary undercut section to hold the pneumatic tube or tubes in place.

When made in this way the said metallic plate or frame or plates or frames can readily be removed from and replaced on the soles and heels of the boots or shoes thus enabling the boots or shoes to be changed from ordinary to pneumatic or from pneumatic to ordinary at will.

Or the pneumatic tube or tubes may be cemented or otherwise fixed to the sole and heel of the boots and shoes.

By "pneumatic tube" I mean any kind of india rubber or like flexible air tube whether made with a separate outer covering portion or not so made.

Dated this 2nd day of August 1893.

CHARLES BOSWORTH KETLEY,
Agent for the Applicant.

[Price 8d.]

Robinson's Improvements in or connected with Boots and Shoes.

COMPLETE SPECIFICATION.

Improvements in or connected with Boots and Shoes.
I, FREDERICK ROBINSON, of Trent Works, Burton-on-Trent, in the County of Stafford, Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

My invention has reference more particularly to those boots and shoes which are worn by athletes or by persons playing tennis, cricket and other out-door games but my invention is also applicable to boots and shoes generally.

My invention consists in the application of inflated or pneumatic india rubber or like flexible tubes to the soles and heels of boots and shoes so as to form an elastic tread, the said tubes being either detachable from the said soles and heel or not detachable and provided with a valve by which the tubes can be inflated or deflated at will.

The said pneumatic or inflated tubes may be arranged and connected to the said soles and heels in various ways for instance the sole of the boot or shoe may have an undercut groove or projecting ribs running round the under side of the same in an oblong or other suitable form and in this groove or between these ribs fits the pneumatic tube which may be like the endless inner india rubber or like air tube and the outer covering of a pneumatic tyre for wheels. There is a similar groove or ribs running round the underside of the heel and a similar pneumatic tube fitting therein. The sole tube and the heel tube are connected together by a small tube under the instep and in this small tube is the valve and connection for the pump when inflating the tubes so that both tubes are inflated together. Or the sole and heel may be quite separate and distinct with separate valve to each.

Or the sole and heel may be made as usual and the pneumatic tube or tubes be arranged to fit in a light metal or other plate or frame or plates or frames the edges of which are turned outwardly and inwardly so as to form the necessary undercut section to hold the pneumatic tube or tubes in place.

When made in this way the said metallic plate or frame or plates or frames can readily be removed from and replaced on the soles and heels of the boots or shoes thus enabling the boots or shoes to be changed from ordinary to pneumatic or from pneumatic to ordinary at will.

Or the pneumatic tube or tubes may be cemented or otherwise fixed to the sole and heel of the boots and shoes.

In order that my invention may be well understood I will now proceed to particularly describe the same by referring to the accompanying drawings on which

Fig. 1 is a longitudinal sectional elevation of a shoe with inflated or pneumatic india rubber or like flexible tubes applied to the sole and heel of the same;

Fig. 2 is an inverted plan of the same with portions of the pneumatic tubes removed so as the better to shew the fixing plates or frames of the same;

Fig. 3 represents in sectional elevation and in inverted plan the metal plate separately which secures the pneumatic tube to the heel of the said shoe;

Fig. 4 is a longitudinal sectional elevation of a portion of a shoe with the pneumatic tubes fixed to the sole of the same according to a modification of this invention and

Fig. 5 is an inverted plan of the heel portion of the shoe part of the indiarubber pneumatic tube being represented as being cut away to more clearly shew the groove in the heel of the shoe in which the said tube fits;

Fig. 6 is a longitudinal sectional elevation of a portion of a shoe with pneumatic tubes fixed to the sole of the same in a slightly different manner shewn by the preceding figs, and

shewn by the preceding figs, and being cut away to more clearly shew the groove in the heel of the shoe in which the said tube fits; a shoe with pneumatic tubes fixed to the sole of the same in a slightly different manner shewn by the preceding figs, and

5 The same letters of reference indicate the same or corresponding parts in all the figures of the drawings.

I will first describe my invention as illustrated by Figs. 1, 2 and 3. A is the sole of the shoe made of india rubber leather or other suitable substance. B¹ is the endless inner india rubber or like air tube of the sole portion of the shoe and B² is its outer covering of india rubber or canvas insertion like the inner air tube and outer covering of a pneumatic tyre for wheels. This outer covering B² is made to surround or almost surround the inner air tube B¹ and is made with two beads, marked respectively b¹ b², one along each edge which fit in the undercut recess c¹ of the thin metal plate or frame C which is by preference made of aluminium or some other light and thin sheet metal and fixed to the sole A by screws such as those shewn and marked d. It will be seen that the edges c² c³ are raised and turned towards each other so as to form the necessary undercut section under which the beaded edges b¹ b² of the outer covering portion B² fit so as to be firmly secured when the inner air tube B¹ is inflated. E¹ is the endless inner india rubber or like air tube of the heel portion F of the shoe and E² is the india rubber and canvas insertion outer covering of the same; G is the thin metal plate or frame which is pierced with a central hole g¹ and the edges g² g³ of the plate G are turned inwardly so as to form the necessary undercut section for the beaded edges e¹ e² of the outer covering E² to take under so as to be secured thereto when the inner air tube E¹ is inflated. The plate or frame G is secured to the heel as by screws d as shewn. It will be seen that the plate or frame G with its air tube E¹ and outer covering portion E² is (except as to shape) similar to the plate or frame C with its inner air tube B¹ and outer covering portion B². Formed with the inner air tube B¹ there is a short tube b³ which passes through a hole in the outer covering portion B² and is connected to one branch of the valve H, to the other branch of which a small india rubber air tube e³ formed with the inner air tube E¹ is fixed. This valve H may be similar in construction to those used for pneumatic tyres for connecting to the pump to inflate the air tube so that by means of this valve both air tubes E¹ B¹ are inflated simultaneously. When it is desired to remove the metal plates C and F from the shoe the same may be done by the same or corresponding parts in all the

When it is desired to remove the metal plates or frames C and G with the air tubes B¹ E¹ have first to be deflated by allowing the air to escape through the valve H and then the air tubes with their outer coverings B² E² will be free to be removed from the plates C and G and the latter may be removed from the sole A and heel F by taking out the screws *d*. In the way the plates and air tubes can be refixed on the shoe by first fixing the plates C and G by screws *d* and then placing the air tubes B¹ E¹ within their respective outer covering portions B² E² and then placing the outer covering B² E² in position on the plates so that the beaded edges of the outer covering engage under the edges of the plates as shewn; then when the air tubes B¹ E¹ are inflated the shoe will be ready for use.

I prefer to employ one valve H which is common to both air tubes B¹ E¹ but it is evident that if desired a separate valve may be used for each air tube B¹ E¹ and C and G which is common to both.

The modification of my invention shown in

the valve H which is common to both.
the modification of my invention shewn by Figs. 4 and 5 the plates or shoe is moulded with and instead thereof the underside of the sole A and of similar shape to the groove c¹ in the plate C and in the a¹ fit the beaded edges b¹ b² of the outer covering B¹ of the sole, and there is a similar groove f¹ running round the underside between the ribs f² f³ for the beaded edges e¹ e² of the outer sole as shewn so that the air tubes, B¹ E¹, and their outer be secured to the sole A and heel E when the inner air tubes described with reference to Figs. 1, 2 and 3

COM.
Improvements in

I, FREDERICK ROBINSON, Stafford, Engineer, do hereby declare in the presence of the undersigned that the same is to be performed in and by the following state

My invention has reference to the use of pneumatic tubes worn by athletes or by persons who are engaged in any manner my invention is also applicable to the use of pneumatic tubes in the construction of the sole tread, the said tubes being detachable and provided with a valve at will.

My invention consists in the use of like flexible tubes to the sole tread, the said tubes being detachable and provided with a valve at will.

The said pneumatic or inflated tubes are used in the soles and heels of boots and shoes in the following manner:

1. The application of an undercut pneumatic tube to the sole and heel of boots and shoes in the following manner: The tube is made of an oblong or rectangular shape and the outer edges are provided with ribs running lengthwise therein. The tube is then inflated under the sole and heel of the boot or shoe when inflated the heel may be raised or the sole may be flattened.

Or the sole may be arranged to be flattened by the use of an undercut pneumatic tube.

When made of an oblong or rectangular shape the tube may be readily bent to conform to the shape of the sole and heel of the boot or shoe.

Or the pneumatic tube may be made of a material which is capable of being inflated to a greater or lesser extent.

In order to secure the tube from being inflated to a greater or lesser extent, the tube may be provided with a valve at will.

Fig. 1 is a plan view of the tube.

Fig. 2 is a side view of the tube.

Fig. 3 is a plan view of the tube with the valve removed so as to show the internal structure.

Fig. 4 is a side view of the tube with the valve removed so as to show the internal structure.

Fig. 5 is a plan view of the tube with the valve removed so as to show the internal structure.

Fig. 6 is a side view of the tube with the valve removed so as to show the internal structure.

Fig. 7 is a plan view of the tube with the valve removed so as to show the internal structure.

Fig. 8 is a side view of the tube with the valve removed so as to show the internal structure.

Fig. 9 is a plan view of the tube with the valve removed so as to show the internal structure.

Fig. 10 is a side view of the tube with the valve removed so as to show the internal structure.

Fig. 11 is a plan view of the tube with the valve removed so as to show the internal structure.

Fig. 12 is a side view of the tube with the valve removed so as to show the internal structure.

In the modification of my invention shewn by Fig. 13, the outer covering B² E² are each made with flanges as shewn, the flange of the outer covering B² is made with two flanges marked respectively a¹ and a² flat against the underside of the sole by the two plates I¹ and I². Similarly the outer covering E² of the heel tube E¹ is made with two flanges marked respectively b¹ and b² which are fixed flat against the underside of the heel by the plates J¹ J², screws d passing through these plates at intermediate points e¹ e² and thus securing the air tube E¹ and its outer covering E² to the underside of the heel.

Having now particularly described and ascertained the nature of the invention and in what manner the same is to be performed I wish to be understood that I am aware that prior to my said invention the soles of boots and shoes have been constructed so as to be inflated with air and therefore I claim as my invention exclusive right of so constructing the said soles and heels by the use of pneumatic tubes.

1. The application of an undercut pneumatic tube to the sole and heel of boots and shoes in the following manner: The tube is made of an oblong or rectangular shape and the outer edges are provided with ribs running lengthwise therein. The tube is then inflated under the sole and heel of the boot or shoe when inflated the heel may be raised or the sole may be flattened.

2. For boots and shoes the india rubber or other like flexible outer coverings B² E² of the air tubes made with beaded edges adapted to engage in the under-recesses in the plates or in the sole and heel of the boots or shoes so as to be secured thereto by the inflating of the inner air tube substantially as hereinbefore described and shewn in the accompanying drawings.

3. For boots and shoes the india rubber or other like flexible outer coverings B² E² of the air tubes made with flanges adapted to be fixed against the sole and heel of the boots or shoes by metal plates substantially as hereinbefore described and shewn in Figs. 6 and 7 of the accompanying drawings.

4. In boots and shoes making the india rubber or like soles and heels with an undercut groove such as a¹ f¹ for the beaded edges of the outer coverings of the inner air tubes to engage with substantially as hereinbefore described and illustrated by Figs. 4 and 5 of the accompanying drawings.

5. For securing the india rubber or other like flexible outer coverings and inner air tubes to the soles and heels of boots and shoes the thin sheet metal plate C and G made with their edges turned upwardly and inwardly so as to form under-recesses for the beaded edges of the flexible outer coverings to engage with in the manner substantially as hereinbefore described and shewn.

6. For boots and shoes, the combination of the metal plate C made with an undercut groove, the outer covering B² made with beaded edges engaging in the undercut groove, and the inner air tube B¹ contained between the outer covering B² and the plate C the whole adapted for fixing to the sole of a boot or shoe so as to form an elastic tread substantially as hereinbefore set forth.

7. For boots and shoes, the combination of the metal plate G made with an undercut groove, the outer covering E² made with beaded edges engaging in the undercut groove, and the inner air tube E¹ contained between the outer covering E² and the plate G the whole adapted for fixing to the heel of a boot or shoe so as to form an elastic tread substantially as hereinbefore set forth.

Dated this 3rd day of May 1894.

CHARLES BOSWORTH KETTLER
Agent for the Applicant.

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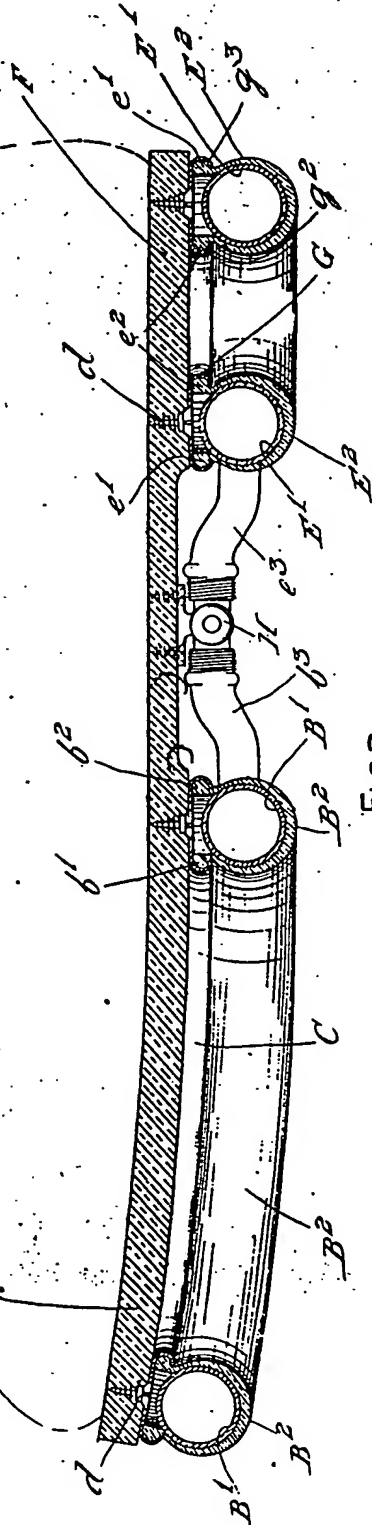


FIG 1

